STCG SUBCON SUBGROUP MEETING

May 28, 1997

N-Area Soil Flushing Proposal (Shas Mattigod)

Soil flushing technology had its origins about 50 years ago. It is used in the petroleum industry and in solution uranium mining. Essentially, a solution is pumped into the sediment/aquifer that enhances the removal of a contaminant. Soil flushing is faster than pump and treat technology by two orders of magnitude.

At the 100-N Area, a solution high in competing cations would be used to enhance removal of Sr-90. If the concentrations of the competing cations increase, Sr-90 adsorption decreases and the sediments will release bound Sr-90 faster. Estimates say that there are 75-88 curies on the aquifer sediments, 0.5-0.8 curie in the groundwater, and 1,000 curies in the vadose zone sediments. Once the Sr-90 is removed, the high Sr-90 water must be captured and treated.

Hydrologic concerns include:

- plume capture
- river influence and potential need for physical barrier
- careful solution composition to prevent corrosion/precipitation/plugging wells and aquifer sediments
- possibility of leaving residual high brine water in aquifer.

Data must be collected with bench-scale testing and hydrological modeling, as well as a literature review of alternative treatment options for the waste stream. Two years of bench-scale testing will be needed to determine the feasibility of the technology. Cost analysis and field scale-up would be done if bench-scale results are positive. Potential design scenarios include:

- single well injection/withdrawl
- dual screen injection/withdrawl
- multi-well injection/withdrawl

Stakeholders must decide the project objectives, numerical goals for Sr-90 removal, the amount of water injected, etc.

Paul Danielson stated that this is a good technology, if done correctly, to clean up the vadose zone below 15 feet. It may be done in conjunction with pump and treat to take care of the saturated zone.

Stan Sobczyk suggested that DOE put out a request for competitive bids for demonstration of this technology, since other companies may be able to do it faster and cheaper.

Jay McConnaughey of the Washington Department of Fish and Wildlife stated that this technology shows a lot of potential for cleaning up the 100-N Area. It looks much better than the in situ treatment zone technology that was proposed last year.

EM-40 has no funds to support soil flushing technology at this time. However, the Subsurface Contaminants Focus Area (SCFA) currently has a call for proposals out which PNNL plans to respond to. Proposals are due on June 13, 1997.

In Situ Redox Manipulation Test Plan (Arlene Tortoso and John Fruchter)

All comments submitted by the Subgroup have been incorporated into the Test Plan. Letters are going out to the Nez Perce Tribe and Ecology summarizing the resolution of their comments. This plan is not going out for public review. If the TDI proposal is funded, DOE-RL will consider having a public review/comment period before deployment of the technology.

Next Meeting

The next meeting will be held on June 25, 1997 in the Bechtel Building. Possible agenda topics include:

- results of the TDI proposal selection process
- technology needs assessment status
- update on Bliley activities

Attendees

Bob Cook (Yakama Indian Nation)
Paul Danielson (Nez Perce Tribe)
Linda Fassbender (PNNL)
John Fruchter (PNNL)
Kim Koegler (BHI)
Shas Mattigod (PNNL)
Jay McConnaughey (Washington Department of Fish and Wildlife)
Fred Serier (DOE-RL)
Stan Sobczyk (Nez Perce Tribe)
Arlene Tortoso (DOE-RL)